

SALT REGULATIONS – WHAT ARE THE IMPLICATIONS?

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THE BACKGROUND

- Compulsory salt reduction targets for processed food became a concern for the Dept of Health in 2010
- Draft proposals tabled for comment in July 2012 proposing 2 phase approach
- Greeted with dismay by food industry – extensive comments made re both levels and timing
- Consultation process was adequate but little cognisance appears to have been taken of genuine practical concerns (?due to lack of technical knowledge within DoH)
- Final regulations gazetted 20/3/13
- Only very limited changes made to original proposals but implementation date of phase 2 extended by 1 year

CONSIDERABLE CONTROVERSY OVER POTENTIAL BENEFITS

- Extensive evidence for potential reduction in incidence of hypertension through Na reduction but not applicable to the entire population
- Many studies do not show cause-and-effect and others indicate that excessive reduction in Na intake is also undesirable
- Department of Health has been extensively influenced by the more fanatical members of the anti-salt brigade and has decided to side with them so we are stuck with it!

COMPARISON OF DRAFT VS ACTUAL STAGE 1

COMPONENT	DRAFT PROPOSALS	FINAL REGULATIONS
1st stage implementation date	30 th June 2016	30 th June 2016
Maximum sodium level in:		
Standard bread mg / 100g)	400	400
'High salt additions' bread (mg / 100g)	480	Excluded
Breakfast cereals	500	500
Fat & butter spreads	550	550
Savoury snacks	750	800 except Salt & Vinegar 1000
Potato crisps	650	650 except Salt & Vinegar 1000
Processed meats	850	850 / 950 depending on class
Soups / gravy powders	5500	Non-instant soup 5500 Gravy powders / sauces 3500 Instant noodle mixes 1500
Stock cubes	17000	18000

COMPARISON OF DRAFT VS ACTUAL STAGE 2

COMPONENT	DRAFT PROPOSALS	FINAL REGULATIONS
1 st stage implementation date	30 th June 2018	30 th June 2019
Maximum sodium level in:		
Standard bread mg / 100g)	370	380
'High salt additions' bread (mg / 100g)	420	Excluded
Breakfast cereals (mg / 100g)	390	400
Fat & butter spreads (mg / 100g)	450	450
Savoury snacks (mg / 100g)	680	700 except Salt & Vinegar 850
Potato crisps (mg / 100g)	550	550 except Salt & Vinegar 850
Processed meats (mg / 100g)	600	650 / 850 depending on class
Soups / gravy powders (mg / 100g)	3500	Non-instant soup 3500 Gravy powders / sauces 1500 Instant noodle mixes 800
Stock cubes (mg / 100g)	11000	13000

COMPARISON FINAL REGULATIONS PHASE 1 VS PHASE 2

COMPONENT	PHASE 1	PHASE 2
Implementation date	30 th June 2016	30 th June 2019
Maximum sodium level in:		
Standard bread (mg / 100g)	400	380
Breakfast cereals (mg / 100g)	500	400
Fat & butter spreads (mg / 100g)	550	450
Savoury snacks (mg / 100g)	800 except Salt & Vinegar 1000	700 except Salt & Vinegar 850
Potato crisps (mg / 100g)	650 except Salt & Vinegar 1000	550 except Salt & Vinegar 850
Processed meats (mg / 100g)	850 / 950 depending on class	650 / 850 depending on class
Soups / gravy powders (mg / 100g)	Non-instant soup 5500 Gravy powders / sauces 3500 Instant noodle mixes 1500	Non-instant soup 3500 Gravy powders / sauces 1500 Instant noodle mixes 800
Stock cubes (mg / 100g)	18000	13000

THE CHALLENGES ARE IN 2 AREAS

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graph TD; A[THE CHALLENGES ARE IN 2 AREAS] --> B[FLAVOUR & CONSUMER ACCEPTANCE]; A --> C[TECHNICAL: EASE OF PROCESSING, SAFETY, COST];
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FLAVOUR &
CONSUMER
ACCEPTANCE

TECHNICAL:

- EASE OF PROCESSING
- SAFETY
- COST

LET'S LOOK AT THE INDIVIDUAL
CATEGORIES...

CURRENT STATUS - SNACKFOODS

SNACKS		CRISPS		SALT & VINEGAR	
Product	Na content mg / 100g	Product	Na content mg / 100g	Product	Na content mg / 100g
Hoppity Poppity Cream Cheese & Chives Popcorn	1189	Flannagan's Sea Salt chips	1200	Jumping Jack S&V popcorn	2220
Simba Cheese Cheetos	1127	Simba Lays	764	Willards S&V chips	1730
Willards Cheese Puffs	1020	2016 Regulatory Requirement	650	Simba Salt & Vinegar Chips	1440
Fritos BBQ	935	Willards plain chips	609	2016 Regulatory Requirement	1000
Willards Cheese Big Korn Bites	856	2019 Regulatory Requirement	550	2019 Regulatory Requirement	850
Simba Niknaks	839	Pringles Original	536	Pick'n Pay S&V chips	615
2016 Regulatory Requirement	800	Pick'n Pay plain chips	255		
Simba Cheese Doritos	714				
2019 Regulatory Requirement	700				

COMMENTS

- Snack foods appear to have been a major DoH target as targets are extremely tough
- Issue is entirely one of taste – no technical concerns
- Almost all products are way over the limits for 2016, let alone 2019
- P'nP data is unfortunately questionable but, if it is correct, it shows what can be done!
- Some targets achievable via progressive reduction but consumer acceptance may be a challenge
- Some products face huge challenges e.g. Flannagans
- Some possibility for partial salt replacement e.g. KCl / micro-pulverised / flake salt but there will be cost implications
- S&V targets appear to be totally unrealistic and could see partial demise of these products

CURRENT STATUS – PROCESSED MEATS

CURED PRODUCTS		UNCURED PRODUCTS	
Product	Na content mg / 100g	Product	Na content mg / 100g
Enterprise Back Bacon	1028	Enterprise Chopped Ham Roll	1240
Renown Shoulder Bacon	1022	Enterprise Smoked Viennas	1215
2016 Regulatory Requirement	950	Eskort Red Viennas	1149
2019 Regulatory Requirement	850	Enterprise French Polony	1080
Eskort Rindless Streaky Bacon	632	Eskort French Polony	1020
		Renown Liver Spread	1020
		Rainbow Simply Chicken Polony	920
		Rainbow Simply Chicken Smoked Viennas	908
		2016 Regulatory Requirement	850
		Enterprise German Viennas	746
		2019 Regulatory Requirement	650

TECHNICAL ISSUES RELATING TO SALT IN MEAT PRODUCTS

- Salt has numerous important functions in processed meats
- Flavour enhancement
- Protein solubilisation:
 - Increases hydration & water binding → reduce cooking loss, improved tenderness & juiciness
 - Increase adhesion & binding properties → improved texture
 - Emulsify fat
- Preservative
 - 2% NaCl has bacteriostatic effect, 4% has bactericidal effect
 - Reduced salt levels will shorten shelf life and increase microbiological risk
- **HOWEVER** lower salt will also reduce tendency to rancidity development in high fat products

COMMENTS

- Various approaches to salt reduction for processed meats:
 - Progressive reduction – typically difficult to reduce by >25% without adverse effects
 - Salt substitutes e.g. KCl, MgSO₄, L-Lysine HCl – limited to 30% replacement by KCl but can reduce by up to 50% using blends
 - Use of flavour enhancers and masking agents e.g. yeast extracts, lactates, MSG, nucleotides N.B. MSG also contributes Na!
 - Revised physical forms as per snack foods
 - Alternative processing techniques aimed at retaining functional and preservative properties imparted by salt
- Note that for some meats there are other forms of sodium added e.g. as phosphates – will need a holistic approach
- Can conclude that reduction is generally do-able at a price but serious concerns re microbiological safety remain and will require reviews of distribution practices and consumer education
- Uncontrolled discretionary addition of salt by consumers will be an issue if flavour acceptability cannot be achieved

CURRENT STATUS – FAT SPREADS

Product	Na content mg / 100g
Rama Original Brick	753
Checkers House Brand Margarine Brick	750
Rama Spread for Bread Brick	634
Stork Country Spread	593
2016 Regulatory Requirement	550
Clover Butro	530
2019 Regulatory Requirement	450
Blossom Regular / Lite Margarines	444
Blossom Canola Margarine	400
Flora Buttery	400
Nuvolite Medium Fat Spread	390
Flora Light Medium Fat Spread	334
Flora Olive Medium Fat Spread	334
Flora Regular Medium Fat Spread	220

COMMENTS

- Certain products are already compliant with both 2016 & 2019 requirements
- No technical issues
- Taste acceptability is main concern and progressive reduction will have to be undertaken
- Potential problems for brick margarines

CURRENT STATUS - BREAD

Product	Na content mg / 100g
Albany White	618
Albany Brown	594
Albany low GI Wholewheat	506
Blue Ribbon White	480
Sasko low GI Seeded Brown	476
Sasko Premium Brown	472
Sasko White	472
Blue Ribbon Premium Brown	464
Sunbake Brown	400
Sunbake White	400
2016 Regulatory Requirement	400
Sasko low GI Wholewheat	399
Sasko White Rolls	382
2019 Regulatory Requirement	380

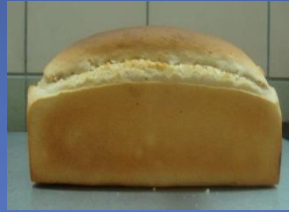
TECHNICAL ISSUES FOR BREAD

- Proposed levels are lower than those planned anywhere else in the world
- Reduction to 2019 levels equates to typical reduction in salt content from 2% to 1.3% of flour weight
- This will have significant effects on bread quality and production efficiencies
- Salt is major contributor to:
 - Dough quality – development of strength and gas retention
 - Ease of handling in high volume production environment
 - Fermentation control
 - Loaf appearance – colour, texture & volume
 - Microbiological stability / shelf life

“Dropped” loaves



CURRENT
2%



1.8%



1.6%



1.4%



PROPOSED
1.2%



1%



0.5%

Photos courtesy
of Anchor Yeast



COMMENTS

- Baking industry is embarking on progressive reduction strategy but faces major challenges
- Replacement with alternatives gives flavour problems & adds cost
- Additional gluten can be added to maintain dough quality but will add cost
- Can use 'stronger' wheat to improve dough quality but not grown locally - more imports, higher cost and reduced local production
- Estimated cost of replacers + increased gluten estimated at >R600M annually
- Difficult times ahead!

CURRENT STATUS – INSTANT NOODLES

Product	Na content mg / 100g
Maggi 2 Minute Noodles Chicken	1501
2016 Regulatory Requirement	1500
Roba Instant Noodles Beef	1400
Maggi 2 Minute Noodles Pizza	1365
Maggi 2 Minute Noodles Cheese	1363
Roba Instant Noodles Prawn	1300
2019 Regulatory Requirement	800
Roba Low Fat Instant Noodles Beef	345
Roba Low Fat Instant Noodles Curry	250

COMMENTS

- Issues relate purely to flavour – no technical concerns
- ‘Low fat’ variants demonstrate that salt reduction can be achieved but flavour impact will be considerable
- Very real risk of substantial discretionary salt addition by consumers

CURRENT STATUS – SOUPS & GRAVIES

SOUPS		GRAVY POWDERS	
Product	Na content mg / 100g	Product	Na content mg / 100g
Checkers Rich Oxtail Soup	8362	Imana Roast Meat Gravy	4672
Knorr Rich Oxtail Soup	7557	Weighless Rich Beef Gravy	4570
Knorr Brown Onion Soup	7435	Royco Rich Savoury Gravy	4049
Checkers Chicken Noodle Soup	6595	2016 Regulatory Requirements	3500
Knorr Chicken Noodle Soup	6297	Knorr Roast Meat Gravy	3802
Royco Chicken Noodle Soup	5879	Bisto Instant Gravy	2214
2016 Regulatory Requirement	5500	2019 Regulatory Requirements	1500
Royco Rich Oxtail Soup	5450		
Royco Beef & Vegetable Soup	4189		
2019 Regulatory Requirement	3500		

COMMENTS

- Issues relate purely to flavour – no technical concerns
- Many products are way above 2016 limits, let alone 2019 limits
- 2019 limits arguably unrealistic
- Salt is a major component of both types of products and major flavour changes are unavoidable even with progressive reduction strategy
- Major re-formulation challenge for R&D staff
- Replacement is difficult, need to look at non-sodium flavour enhancers or sodium-containing flavour enhancers at low dosages
- Changes will almost certainly increase RM costs
- Very real risk of substantial discretionary salt addition by consumers

CURRENT STATUS - SAUCES

Product	Na content mg / 100g
2016 Regulatory Requirement	3500
Royco Sweet & Sour Sauce	3230
Royco Black Pepper Sauce	2552
Knorr Chicken à la King Sauce	2524
Knorr Bacon & Mushroom Sauce	2313
Imana White Sauce	2159
Knorr Mushroom Sauce	1963
Knorr Classic White Sauce	1919
2019 Regulatory Requirement	1500
Royco Low Fat Cheese Sauce	280

COMMENTS

- Issues relate purely to flavour – no technical concerns
- Most products well above 2016 & 2019 limits
- Major reformulation required however saving grace is that sauces are typically consumed in conjunction with other highly flavoured foods and salt reduction may not be as noticeable
- Progressive reduction strategy required as per soups & gravy powders

CURRENT STATUS – STOCK CUBES & CONCENTRATES

Product	Na content mg / 100g
Imana Garden Vegetable Stock Cubes	27809
Knorrox Chicken Stock Cubes	22005
Knorrox Beef Stock Cubes	21701
2016 Regulatory Requirement	18000
Ina Paarman Beef Stock Powder	17230
Knorr Stew Granules	16025
2019 Regulatory Requirement	13000
Imana Gourmet Lamb Stock Cubes	6802
Knorr Stock Pot Beef	2419
Knorr Stock Pot Vegetable	2301

COMMENTS

- Issues relate mainly to flavour but salt has a functional role in stock cubes
- Many products are way above 2016 limits, let alone 2019 limits
- Salt is a major component of both types of products and major flavour changes are unavoidable even with progressive reduction strategy
- Major re-formulation challenge for R&D staff
- Replacement is difficult, need to look at non-sodium flavour enhancers or sodium-containing flavour enhancers at low dosages
- Changes will almost certainly increase RM costs
- Very real risk of substantial discretionary salt addition by consumers

CURRENT STATUS – BREAKFAST CEREALS

Product	Na content mg / 100g	Product	Na content mg / 100g
Kelloggs Cornflakes	898	Checkers Cornflakes	336
Bokomo Cornflakes	882	Weetbix	332
Kelloggs All Bran	705	Kelloggs Coco Pops	310
Kelloggs Rice Crispies	650	FutureLife Original	284
Special K	630	Nutrific	268
2016 Regulatory Requirement	500	Nature's Source Crunch Muesli	231
Nestlé Cheerios	483	ProNutro Original	192
Bokomo Otees Original	405	Nestlé Milo Cereal	115
2019 Regulatory Requirement	400	Taystee Wheat	60
Maltabella	392	Heartland Cornflakes	0.3???

COMMENTS

- Higher salt levels typically required to improve flavour of bland base products – reduction will have flavour impact
- Various mainstream brands will require modification by means of progressive reduction
- Generally however breakfast cereals is the category least impacted by the regulations

IN SUMMARY KEY ISSUES ARE

- FLAVOUR

- Snack foods
- Processed meats
- Bread
- Instant noodles
- Soups / gravies /
sauces / stock cubes

- TECHNICAL

- Processed meats
- Bread
- (Stock cubes)

WHAT CAN WE EXPECT IN PRACTICE?

- Significant flavour changes in some snack foods and possible disappearance of some variants, particularly S&V
- Flavour changes & reduced shelf life for certain processed meats
- More expensive bread with less appealing appearance & texture
- Significant flavour changes for a wide range of condiments and savoury dry mix products

BROAD CHALLENGES FOR THE INDUSTRY

- Major technical resources required in many areas
- Higher costs for most affected products
- Consumer acceptance of flavour changes
- Cowboys operators who ignore the law and gain unfair competitive advantage
- Reliable methodologies for analytical determination of Na

THE RATIONALE BEHIND THE 'PROGRESSIVE REDUCTION' THEORY IS SOUND IN THEORY BUT...

- Taste changes will be dramatic in some cases and the proposed timeframe may not be sufficient for consumers to become accustomed to them
- 'Discretionary salt' usage by consumers may increase in an uncontrolled fashion to compensate
- What about enforcement?

THE MILLION DOLLAR QUESTION
IS...

WILL IT HAVE ANY REAL
EFFECT ON PUBLIC HEALTH??

ANSWER...

ONLY IF GOVERNMENT PUTS
SIGNIFICANT RESOURCES INTO
ENFORCEMENT AND CONSUMER
EDUCATION RE DISCRETIONARY
SALT!

AM I OPTIMISTIC?

REGRETFULLY, NOT VERY!

WHY?

- Government's track record on consumer education is poor and budgets will be an issue
- Most consumers and particularly low income consumers purchase and eat based on price & palatability and not on health considerations
- Enforcement track record on all DoH related food legislation is poor due to lack of resources and dysfunctional systems at municipal level

BUT ABOVE ALL...

YOU CANNOT
LEGISLATE HUMAN
BEHAVIOUR!!!

THE INDUSTRY IS IN A NO-WIN SITUATION

- Possible that we will not see a significant reduction in overall Na consumption due primarily to the discretionary salt issue and lack of enforcement
- In this scenario, government may turn to more radical and impractical legislative measures
- Danger of a vicious circle developing

THERE IS SOME HOPE...

- The recently published SANHANES report indicates a big improvement in Fe and Vit A status among the SA population
- Could it be at least partially due to legislative measures i.e. staple food fortification?
- Is there a potential lesson here?
- The trick is to find the balance between behavioural & non-behavioural issues

SO I HOPE TO BE PROVED WRONG!!

ACKNOWLEDGEMENTS

- Arno Hugo (University of the Free State) for assistance and provision of data on processed meat
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